

# COAL MINING

JANUARY, 1952

"The Picture-Book of the Industry"

VOLUME 29, No. 1



Allis-Chalmers HD-20 with Baker Hydraulic Bulldozer . . . GILLELAND COAL Co., Uniontown.



Lima 1201 Dragline . . . CARMAN AMBROSIA COAL COMPANY, New Castle.

## Equipment-Wise Mine Operators depend on *Highway*

... for peak operating efficiency, you should grant your Highway representative the privilege of telling you about his new money-saving, time-saving, bigger-production lines for '52.

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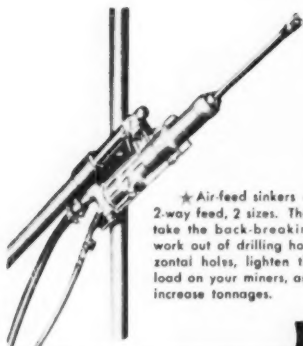


6465 Hamilton Ave. • Pittsburgh, Pa.

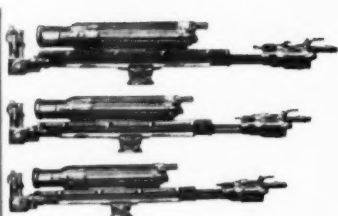
Allis-Chalmers • Jaeger • Baker • Gar  
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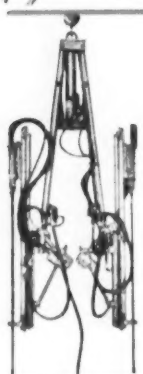
★ Air-feed sinkers — 2-way feed, 2 sizes. They take the back-breaking work out of drilling horizontal holes, lighten the load on your miners, and increase tonnages.



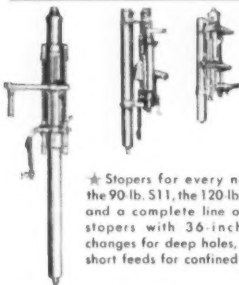
★ Power-feed and hand-cranked drifters. Dependable, powerful, and fast. Ideal for columns and jumbos alike.



★ A complete line of sinkers from 18 to 80 lbs. including the popular 45-lb. H10, and 55-lb. H111.



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★ Stoppers for every need — the 90-lb. S11, the 120-lb. SS 22, and a complete line of offset stopers with 36-inch steel changes for deep holes, or with short feeds for confined spaces.

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... fast-drilling, dependable favorites of mining men since 1906

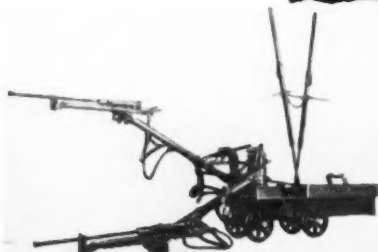
Of course, you know that Le Roi-CLEVELAND builds the popular, easy-holding H10 and H111 sinkers... the fast-drilling PD24, 25, and 14 power feed drifters... the S11 and SS22 stopers with trip rotation for easier handling... and a mine jumbo that lets you drill out your rounds faster, with greater safety.

But did you know that Le Roi-CLEVELAND was responsible for some famous "firsts"? Here are a few of them—work-savers that help your miners increase their man-shift pro-

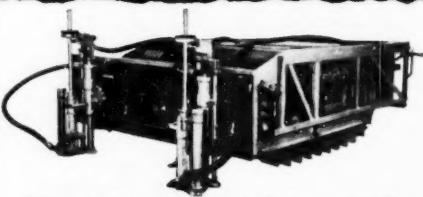
duction: the air-feed sinker, the off-set stoper, the shaft sinker, the stoper jumbo.

So if you have a job of drilling to do—do it with Le Roi-CLEVELAND machines. You can count on them. They're built for speed. And they're built to stay underground, too — where you can use this speed to do more work and cut your costs.

Detailed information about the complete Le Roi-CLEVELAND rock drill line is yours for the asking. Just write us.



★ The famous MDR Jumbo with air-motor powered booms for quicker set-ups, greater safety, faster rounds.



★ Stoper jumbo — self-propelled with its own integral dust-collection system for positive dust control, the latest thing for roof bolting.



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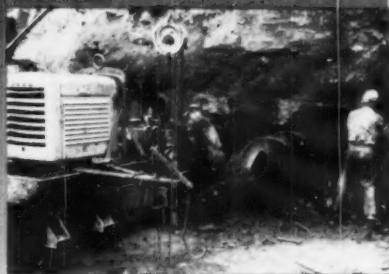
The McCarthy Coal Recovery Drill starts in where the shovels leave off . . . in those rich veins which have been untouched because of too costly overburden removal. The McCarthy Drill bores horizontally or at an angle . . . mining and loading in one continuous operation.

Consider the operation illustrated here; a 30-inch McCarthy drill is shown at work on the coal drilling operation of L. E. Grant near Edwight, Raleigh County, West Virginia. The huge power-driven drill bores the coal out of the rich seam after stripping has mined as much of it as it is profitable to recover that way. The 30-inch drill comes in six-foot sections, and 17 of them are used at this particular operation to drill a hole

102 feet back in the mountain. A three-man crew can produce 90 tons of clean coal in an eight-hour shift, a portable conveyor being used to load the coal into trucks. Grant has two such drilling outfits at work near Edwight. Rish Equipment Company, McCarthy drill distributor in the two Virginias, has sold sixty drills for this unusual method of coal mining.

McCarthy drills can be used for strip or deep mine operations. Available in diameters of 12, 16, 20, 24, 30, 36, 42 and 48-inch.

Let us have your inquiries which will be referred to our nearest distributor. Write today for the full story on the revolutionary McCarthy Coal Recovery Drill.



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On draglines, shovels, pumps, compressors, motorgraders and other coal mining equipment the most rugged, most dependable power unit available is a "Caterpillar" diesel engine.

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As over the years gone by, you can depend on Beckwith service in the years ahead. At Beckwith's, where the customer is the recognized boss, your interests and your success are the first consideration.

May we suggest that you consult with Beckwith on your equipment needs?





1. "It's a natural" from the early days of strip mining—a "Caterpillar" Diesel Tractor equipped with bulldozer blade. Above a D7 with 7A blade owned by Frantz Construction Company works on stripping operation near Uniontown, Pa.



2. Cleaning up is part of the primary work of this No. 313 "Caterpillar" Diesel Motor Grader in operation near Berlin, Pa. by Dunlap Coal Company of Windber, Pa.



3. Maybe there is a pumping job to be handled when you run into a water problem. A "Cat" D315 engine drives a Jaeger pump mounted on a raft for R. O. Murphy & Company, Allison Park at their strip job near Huey, Pa.



4. Bucyrus-Erie is a name that is dominant in shovels and draglines. Here a "Caterpillar" Diesel D13000 Engine powers a 388 stripping operation at Weirton Construction Company at their Mingo Junction, Ohio.

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*Here's how* **rubber-tired *TOURNADOZER* speeds pit maintenance**



#### **STRIPS SHALE THE YEAR 'ROUND**

At Middle Branch, Ohio, Diamond Portland Cement Co., strips shale year 'round with C Tournadozer. "Will move as much shale in 1/2 day as our crawler can in a full day," says Vice President E. R. Evans. For clean-up of plant, Tournadozer runs 3 miles from plant to pit, over asphalt roads in a few minutes.

## *You get action-fast*

Tournadozer works anywhere . . . any time, "runs" on big 21.00 x 25 low-pressure tires at speeds up to 19 m.p.h. Tournadozer works in toughest footings . . . up steep grades . . . in any kind of weather . . . through mud, sand, or snow which would stall ordinary crawlers. At a moment's notice, operator can drive rig anywhere over highway or cross country to distant pushing, pulling or dozing assignments. No delays for trailer, blocking, loading or unloading.

With a standard bulldozer blade or interchangeable Angledozer blade or V-type Snow Plow, plus its ability to tow a Rooter or haul Scrapers, Tournadozer is an all-year tool. It has fast, 4-wheel drive on rubber, instant gear change with constant-mesh transmission, torque converter, powerful 4-wheel, disc-type air brakes with a total of 2822 sq. in. braking area, plus fast, easy fingertip electric control.

Check actual job performance reports shown here. Ask your LeTourneau Distributor for additional output figures and other facts on versatile Tournadozer.

Tournadozer, Tournapull, Carryall, Angledozer, Rooter—Trademark Reg. U. S. Pat. Off. 8149-H


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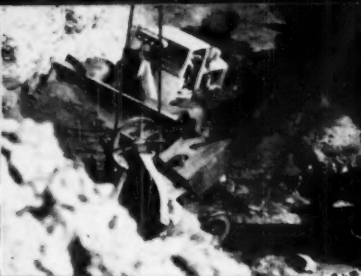
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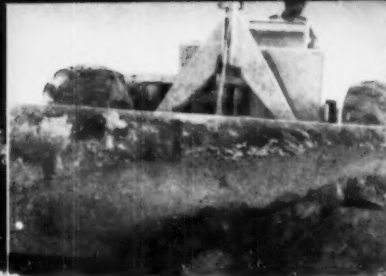
#### GRADES AND MAINTAINS ROADS

At pit north of Arctic Circle at Kirkenes, Norway, over 25 million yds. of rock are being removed to uncover magnetite ore. Sydværanger, A/S, Oslo, started hauling with six 40-ton, rear-dump Tournadozers, later added 6 more plus 2 C Tournadozers. Dozers build and maintain haul roads and handle shovel clean-up. Combined, the 14 units are moving 12,000 tons of rock and ore per day.



#### SHOVEL CLEAN-UP

Working at Stanley Mining Company's ore pit at Bivabik, Minn., Tournadozer's principal job is handling clean-up around the ore shovel. On this multi-handling, 24-hr., 7-day a week operation, Tournadozer utilizes normal waiting periods to maintain rock dump, clean spillage at crushing plant . . . feed material from surge pile to hopper . . . clear timber ahead of rock drill, etc. Rig has 4 speeds forward, 2 reverse.



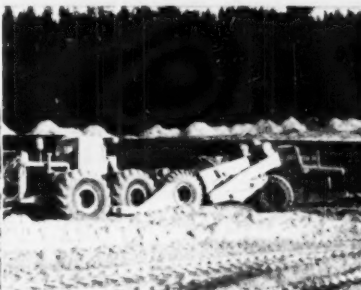
#### DOZES ONE INTO GRIZZLY

On bauxite stripping near Little Rock, Arkansas, 1 Tournadozer handles 5 major jobs every day . . . is on call 24 hours a day. It dozes bauxite ore into 4 to 8 grizzlies . . . maintains quarry rock stockpile . . . cleans up around two 2 1/2-yd. shovels . . . pulls 13-yd. wagon to haul and spread waste material. "It's been doing the work of 2 crawlers," reports the Plant Supt. Operator can change gears without stopping.



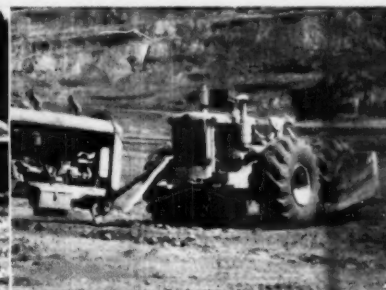
#### MAINTAINS DUMPS

Tournadozer's high-speed and rubber-tired mobility enables it to keep busy day and night for the E. W. Coons Co. at the Genoa strip mine at Eveleth, Minn. During one typical 10-hour night shift, the big rig maintained 2 overburden dumps and lean ore stockpile, did clean-up work around 3 stripping shovels, found time to do haul road maintenance besides. No wonder this firm likes their Super C Tournadozer!



#### PUSH LOADS SCRAPERS

J. Neils Lumber Co., Libby, Montana, teamed this C Tournadozer with 3 C Tournapulls on an 800,000-yd. access road near Rexford. With Tournapulls on 2000' cycles, Tournadozer pushed 42 loads of sand an hour . . . with 'Pulls on 600' cycles, 54 loads hourly. Load distance for 9 1/2' pay yards averaged 75' . . . load time, 30 seconds. With Angledozer blade mounted, rig speeds sidehill work.



#### PULLS HEAVY EQUIPMENT

Skidding heavy compressor is one of many maintenance jobs Tournadozer handled around Interstate Iron Co. mines near Calumet, Minn. The "C's" big, 186 h.p. diesel engine and 4-wheel drive develop plenty of drawbar pull to handle heavy loads. It pulls Carryall-Scrapers, tows Roopers, heavy-duty trailers, bogged down trucks; skids generator plants, cable-boats, poles, piling, etc.



#### SPOTS RAILROAD CARS

Here, versatile Tournadozer spots empty rail cars under ore loader for Mesabi Iron Range Mining Company. Powerful rig is handy for switching cars . . . keeps sidings clear for incoming freight. Tournadozer takes shortest route between jobs . . . rubber tires permit it to cross or follow tracks anywhere without planking. Instant-shift gear selection keeps unit pushing without losing momentum.



#### WORKS SCATTERED JOBS

Leveling spoil, clearing snow, and handling pit clean-up for West Virginia-Pittsburgh Coal Co. mine at Collier, W. Va., Tournadozer drew high praise from Owner F. A. Howe. "It dozes 50% more spoil than a crawler," he said, "and is so fast and mobile that we use it to work all 5 of our pits over a 10-mile route. It saves us 1 to 2 tractors." Drives a mile in a few minutes . . . travels over pavement, crosses tracks.



#### PLOWS SNOW

In 34° below zero weather, a Rural Municipality in Manitoba cleared over 600 miles of roads and farm lanes in 142 hours. Drifts were 3 to 8 ft., some almost solid ice. Tournadozer mounted a LeTourneau 12'3" x 6'6" V-type snow plow. Eliminated plowing snow back on road . . . big tires and adjustable runner shoe protect plowed surface.

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# COAL MINING

Vol. XXIX January, 1952 No. 1

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## Do You Know?

Smaller electric generators will do the work of larger ones with a newly-developed system for cooling the giant machines now used to produce electric power for homes and factories. Important is the claim that turbine generators with this cooling system will reduce by 50 per cent the copper required for such units, thus resulting in a great saving of this critical metal.

The cooling system is a development of Westinghouse Electric Corporation. It is called a "hollow coil" technique, and it is applicable to turbine generators having a rating of 90,000 kilowatts or more. It is a result of studies made in the fundamental problem of heat resulting from power generation. This heat arising in the generator's copper coils, if completely unchecked, would expand the metal, ultimately wrecking the unit, it was explained by C. M. Laffoon of the Westinghouse staff.

In the new cooling system, he stated, instead of passing the cooling agent, hydrogen, over the solid insulated coils, the coils are made hollow and the hydrogen passes through the coils themselves. This places the hydrogen in direct contact with the naked copper. The hydrogen picks up the heat, carries it off for disposal, then recirculates through the coils.

The first hollow-coil, internally-cooled generator is now under construction and will go on test during 1952. Other units will be ready later. The new design will allow a given amount of copper in a large generator to produce about 50 per cent more power than present types, an official of the company stated.

A split-winding method to give normal-voltage reduced current for starting induction motors was described here today to the American Institute of Electrical Engineers by three scientists of the General Electric Company, Schenectady, N. Y.

"The scheme," they said, "consists in connecting one phase of a three-phase winding in series during the starting period only, the other phases having circuits in parallel. When full speed is attained, the series connected winding is opened momentarily, and then put back on the line in parallel."

The scientists are P. L. Alger, H. C. Ward, Jr., and F. H. Wright. According to them, the method "gives the advantages of reduced current without any current surge or reclosing, no external impedance, and a low cost of control."

"Although this type of connection will draw unbalanced line currents, this appears unimportant. In most cases there will be other machines on the line to act as phase balancers and absorb the relatively small negative sequence current."

The split-winding method is especially adapted to cases where "soft" starting is desired, without any sudden torque peaks, they added. As compared to the reactor method of starting, the split-winding gives greater torque per ampere and requires less equipment and smaller size auxiliary contractors.

## Here and There in the Coal Industry

Henry F. Hebley, research consultant, and Earl C. Payne, consulting engineer, Pittsburgh Consolidation Coal Co., were elected Fellows of the American Society of Mechanical Engineers at the recent meeting of the directors of this professional society.



The citation to Mr. Hebley honors him for his work in the fields of atmospheric and stream pollution. His "early conception of the real factors affecting atmospheric pollution has brought about the recent modern scientific interest and approach to solution of the problem." He is also credited with encouraging a scientific approach toward the treatment of water-borne industrial trade wastes. Mr. Hebley's work in these two fields, in the view of the society, has contributed most to the profession and "significantly to the public welfare."



Mr. Payne was honored for his contributions to fuel performance and for his "outstanding engineering work" in organizing and directing group "programs on research and development to advance the art and profession of fuel engineering, including both technical and economic phases." He is acclaimed for such work as organizing the Great Lakes Air Pollution Abatement Program to reduce smoke from lake vessels, and for a number of activi-

ties in Allegheny County and elsewhere to reduce locomotive smoke and develop cinder collection and ash disposal systems. Mr. Payne is presently leading a national movement, the Society reports, to provide engineering advice to consultants and owners of small steam plants, so that they may use coals more efficiently and economically.

The Kentucky Mining Institute held its 12th Annual Meeting at Lexington, Ky.

The following officers were elected for the ensuing year: President, Frank Kerr of Eastern Coal Corporation; 1st Vice President, L. P. Johnson of Crummies Creek Coal Company; 2nd Vice President, S. M. Cassidy of the Consolidation Coal Company (Kentucky); 3rd Vice President, S. A. Fox of the Blue Diamond Coal Company, and A. D. Sisk, Chief, Ky. Dept. of Mines, was reelected Secretary-Treasurer.

Harold L. Beattie, mining Engineer, graduate of the University of Pittsburgh, and with a work record embracing Eastern Gas and Fuel Associates, Davis Coal and Coke Company and Warner Collieries, has recently been appointed Production Engineer of the coal operations of Elk River Coal and Lumber Company at Widen, West Virginia.

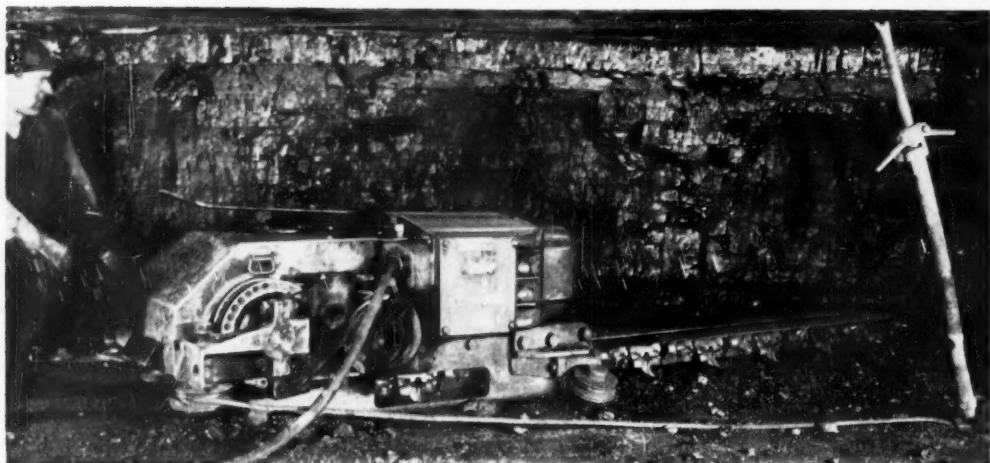
Vernon O. Murray of Rock Springs, Wyo., was named Vice President of Operations of the Union Pacific Coal Company, a subsidiary of U. P. Railroad.

Murray will succeed H. C. Livingston, who will leave the company the end of this month to take a similar position with Truax-Traer Coal Company of Chicago.

H. C. Pridham has been made president of Davis Coal & Coke Company, and Stephen Canonico has been made president of Compass Coal Company, both in West Virginia.

The American Mine Door Company, Canton, Ohio, announced the appointment of Robert (Bob) Thompson, of Madisonville, Kentucky, to replace J. B. Templeton as sales representative in that area.

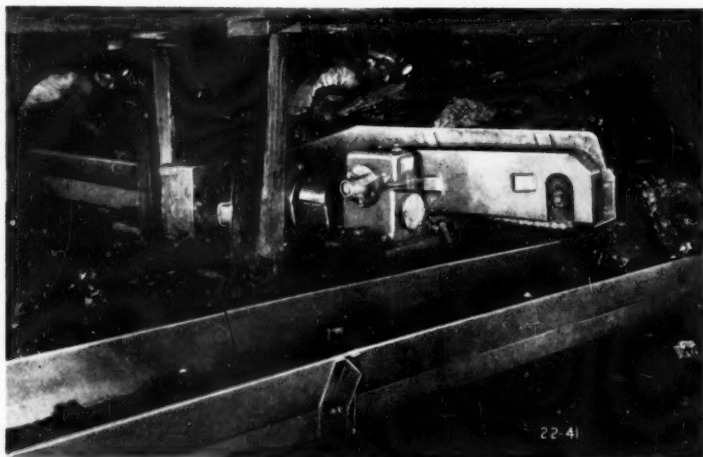




## RELIABLE PERFORMANCE—LOW MAINTENANCE

The Jeffrey 35 B Coal Cutter (illustrated) is a continuous duty unit designed and built for tough underground service over long periods with minimum maintenance. These SHORTWALL machines are of simple, rugged design with few, slow moving parts and slow speed motor.

At the right you see coal being moved out with Jeffrey Chain Conveyors, face, room and entry types. Here again, economy of operation is important and reliable performance a major benefit. We have the plant facilities, the experience and the engineering organization to be of great help to you. May we hear from you?



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The Ohio Malleable Iron Co., Columbus, Ohio

British Jeffrey-Diamond Ltd., Wakefield, England  
The Kilbourne & Jacobs Mfg. Co., Columbus, O.  
Galion (Great Britain) Ltd., Wakefield, England

The Galion Iron Works & Mfg. Co., Galion, Ohio and Bucyrus, Ohio



Roof Fall. Left side of fall showing how bolts pulled out.



Eight Butts Section, Conventional Timbers in a Room.

## Operating Experiences With Roof Bolting

Read at the 65th Meeting of the  
Coal Mining Institute of America

Roof bolting experiences described in this article are those experienced by the operating personnel of the Warwick Mine No. 2 of the Duquesne Light Company. This mine, located about sixty miles south of Pittsburgh on the Monongahela River, is mining in the Pittsburgh seam of coal.

The origin of roof bolting at Warwick dates back to the early part of 1950, at which time representatives of the United States Bureau of Mines were called in to study the roof conditions and to advise in general concerning the installation of a roof bolting system. Following this study mine officials and interested manufacturers of roof bolting equipment conducted pull tests to determine the installed tension and maximum holding force of roof bolts in a normal Pittsburgh Seam roof. From these tests we found it possible to attain with a three-fourths inch by five foot bolt an installed tension of seven thousand to eighty-five hundred pounds and a maximum holding force of sixteen thousand to twenty-two thousand pounds. With this information to



Acei Carand Reading His Paper

guide us we installed our first bolts in active workings.

The area chosen for this initial installation was at that time working under normal Pittsburgh Seam roof with conventional timbering being practiced, this consisting of two timbers per cut recessed in hitches cut in each rib in all places twelve to fourteen feet wide. In addition to these timbers we installed six bolts per cut in two rows of three each on three foot centers across the entries, and four foot centers with the entries.

These bolts were the expansion sleeve type, five feet in length with a six inch by six inch by three-

eighths inch steel bearing plate resting directly against the coal top.

Approximately fifteen thousand square feet of roof area had been supported in this manner when a roof fall consisting of roof coal and draw slate occurred. However, none of the bolts were dislodged, the roof coal and draw slate in this instance having broken between the bolts. Observing this, we realized that it would be necessary to provide more bearing surface against the mine roof. It was decided that this could be done by placing a plank one and one-half inches by eight inches by five feet, with bolt holes drilled six inches from each end, between the bearing plate and the roof, with the left rib bolt and center bolt holding the first plank and with the right rib bolt installed with just the six inch by six inch by three-eighths inch bearing plate, and then by staggering the next set, that is, with the plank on the right side of the entry and the bolt and bearing plate on the left.

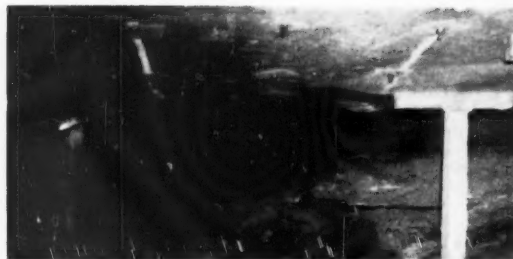
This system did prove more successful than the first system used as no failures were observed, but



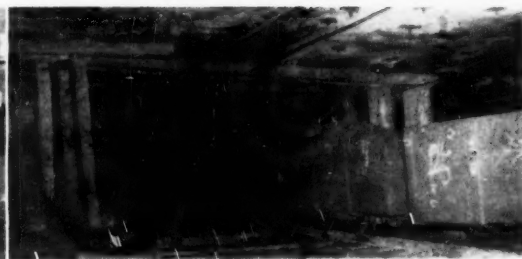
2" x 8" x 14' Boards and Bolts. The Room is Completed.



Conventional Timbering on Sectional Haulway.



Roof Fall 26' x 20' was Reported July 5, 1950. Bolts did not Anchor in Rider Coal Seam



Use of Roof Bolts. Note the 7" x 9" x 16' Treated Headers are Bolted to the Roof.

the area bolted under head coal in this manner was comparatively small due to the entries driving into a snap coal area. "Snap coal" is the term we apply to the Pittsburgh Coal Seam in which we encounter abnormal formations of the seam and its overlying strata, where the coal appears brittle and actually snaps and spawls from the face and ribs, and where the overlying strata has no uniform structure and consists of a series of laminated coals and shales which will not support their own weight and will, as experience has taught us, fall over the top of the cut as the cutting machine progresses across the face.

The system of mining employed at Warwick for such affected areas is to drive entries twelve feet wide and mine the full coal seam and the slate immediately above the coal seam, to timber each cut with at least two eighth inch by ten inch by fourteen foot timbers recessed in hitches cut in each rib, and then to place lagging above the timbers wherever necessary. Despite this change in mining conditions we continue to use the same bolting system, finding that the one and one-half inch plank could be made to conform to the contour of the irregular roof, giving a maximum bearing surface. Four entries on one hundred foot centers, with cross cuts also on one hundred foot

centers, were driven a distance of one thousand feet through these conditions, exposing eighty thousand square feet of roof area, with only two falls of roof occurring after the timbers and bolts had been installed, and in both instances the roof broke above the strata in which the bolts were anchored.

When retreat work on this section was started we decided to bolt the pillar splits and the first two cuts of the four cut open end lifts, and for a short time it appeared that we would be successful in controlling the roof with this method. But the weak structure of the roof could not withstand the additional strain placed on it prior to falls being made. The roof would break above the anchoring point of the bolts. Due to this inability to control the roof while pillaring, we decided to mine on a fifty percent recovery system.

From this you might have come to the conclusion that our roof bolting of snap coal was a failure but such is not the case. In similar areas mined previous to this time pillaring was also an impossibility and practically all timbers had to be reinforced or replaced, and many large falls of slate had to be cleaned.

This did not occur in the bolted area for the bolts had definitely built a beam from the laminated shales and coals, strengthening the

roof and preventing the usual settling of the roof on the timbers, thus greatly reducing the dead work heretofore necessary in this type of retreat work.

The drilling done for our roof bolting to this date had been accomplished by mounting an electric drill on the cutter bar of a universal cutting machine and feeding the drill by raising the cutter bar as the auger penetrated the strata. A twist auger equipped with diamond point tungsten carbide tipped bits was used for drilling and the bolts were tightened with a wrench powered by the electric drill.

Being thoroughly convinced by the results obtained in this initial trial that roof bolting would relieve many of our roof control problems we purchased a permissible self-tramming rubber tire mounted hydraulic roof drilling and bolting machine and placed it in service in a section in which a normal Pittsburgh Seam top prevailed and in which air courses were being developed which will remain for the life of the mine, some forty years at the present rate of mining.

Previous to installing the roof drilling and bolting machine the roof coal and draw slate were mined as the entries advanced since previous experiences had taught us that the roof coal and draw slate would fall shortly after development and would congest the airways. There-



Use for Roof Bolts: This will be the main line haulage. Holes are Burned in the Steel Ties and 60 pound Rails will be Bolted to the Bottom.



Main Line Haulage. Using this System, They do not Take Top or Bottom

fore, in removing the head coal and draw slate we were assuring sufficient area for the passage of a large volume of air even if the entries should fall in future years. However this is extremely costly, for in our system of mining the cutting machine must shear through the draw slate in each shear and must cut two hitches per cut in each rib. These hitches are cut in the draw slate so that the timbers may be placed directly against the

with one hole less since no breaker shot is necessary and the loading crew is not hampered by slate.

Approximately seventy-five thousand square feet of roof area timbered and bolted in this manner have been exposed for from three to six months without a roof fall having occurred. Under similar roof conditions and with larger timbers used as roof supports we know from past experience that the roof at nearly all cross cuts and entry in-

6 3/4"x5' Bolts @ .63	\$3.78
6 Expansion Sleeves @ .28c	1.68
2 3"x3"x3/8" Bearing Plates @ .09c	.18
4 3"x3"x3/8" Angle Plates @ .17c	.68
2 3"x6"x14' Timber @ 1.26	2.52

Total \$8.84

Excluding the cost of timbers as they are not a new cost item, roof bolting has added \$6.32 to the total cost per cut for roof support. Since the average cut produces twenty-five tons of coal, the cost per ton for roof bolting materials is twenty-five cents. An additional five cents per ton can be added for the equipment and maintenance of equipment used to install the bolts. These are the only new costs added as no increase in labor is involved, the two crew members formerly timbermen now being used as roof bolters.

Our bolting crews have averaged eight places per day which requires sixteen timbers and forty-eight bolts. The average actual timbering and bolting time per place is thirty minutes plus fifteen minutes for tramming time between places, gathering supplies, and miscellaneous delays, making an average total time of forty-five minutes per place.

Summarizing the conclusions of the Warwick Mines operating personnel in our roof bolting program to this date, we believe that it was beneficial both from a safety and an efficiency standpoint that we asked for and received technical advice concerning a roof bolting system before entering into such a program; that we definitely strengthened the roof in a snap coal area but we did not succeed in completely controlling it; that we have been able to control the roof where a normal Pittsburgh Seam condition exists; that the additional increase in our roof support cost at the working face will be paid for by the decrease in deadwork heretofore necessary when a section was

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We will need men trained in applications and operation of automatic machines and devices. Men with the proper kind of training, working with mine development engineers, could tell us what is and what is not possible, so that we would not go at things in a hit or miss manner as we are doing now. Once plans are formulated they can be used for criticism on a scientific basis and for further research.

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roof. This necessitates the timberman placing the timbers at least eight feet above the bottom, placing undue strain on the timberman, and making each timber setting a potential accident hazard. An extra hole is drilled and shot to bring the roof coal and draw slate down. The loading crew must break any remaining large pieces of slate by sledging, increasing the loading time per cut, and the cleaning plant must remove the added impurities, often overtaxing the capacity of the cleaning plant.

With the installation of the roof drilling and bolting machine this system was greatly revised, each revision bringing about added safety and simplicity of operation.

The cycle of operation for roof bolting is as follows:

The roof bolting crew enters the place and sets necessary safety posts or jacks, then two three inch by six inch by fourteen foot timbers are placed on about four foot centers in hitches cut by the cutting machine as the previous cut was made, and the timbers are then wedged tightly against the roof.

Following this the roof drilling and bolting machine is brought to the working face and a vertical hole drilled through the timber and into the roof to a depth of five feet. A three-fourths inch by five foot bolt with expansion sleeve and a six inch by six inch by three-eighths inch bearing plate are installed and tightened by the hydraulic drill. The drill is then angled to either side and a hole is drilled through the timber and into the roof at an angle of about forty-five degrees and the installation procedure repeated with the addition of a wood filler block placed between the bearing plate and the timber. The second timber is then bolted in the same manner. The place is shot

intersections would have fallen.

A second section has been developed with this same system of roof control, the only change being a difference in materials, with a three inch by three inch by three-eighths inch bearing plate for vertical holes replacing the six inch by six inch by three-eighths inch bearing plate, and a three inch by three inch by three-eighths inch angle plate for angle holes replacing the six inch by six inch by three-eighths inch bearing plate and wood filler block previously used. This section of four entries on eighty foot centers and one hundred foot center cross cuts was driven twelve hundred feet exposing ninety-five thousand square feet of roof area without a roof fall occurring.

This section is now retreating, the lead end of the pillar line having retreated some six hundred feet, and no falls of roof coal or slate have been encountered. The pillar splits are being bolted as they are developed but open end lifts are not as it would not be economical to do so considering that an open end lift can be completed within a twenty-four hour period.

All of our drilling done before October, 1951, was done without a means of dust control. However,

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Long before man evolved far enough to invent heat engines, nature accumulated carbohydrate material over millions of years, altering its chemical structure to the form of coal in order to give a greater percentage of combustible carbon so that we can have convenient fossil fuel packaged as solid.

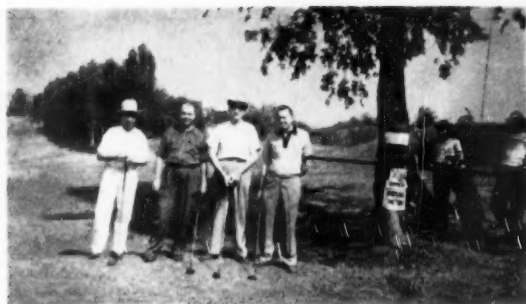
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our mechanical department has devised a water spray which works separately from the drill and is raised or lowered by water pressure, spraying one quart per minute directly at the bottom of the hole and allaying the dust.

The itemized cost of materials for roof bolting one cut in the last described manner is:

on retreat and by the efficiency of our preparation and loading units due to more favorable working conditions; and last, that the men working on roof bolted sections are very receptive to the program and are cooperating with mine management because they too believe that roof bolting is conducive to better roof control.





Left: Ed Siemon, President of this golf assn.; Fred Colley, Penn Machine Co.; Kenn Bartlett, Bethlehem Collieries Corp.; J. P. Howell, Jeffrey Mfg. Co.



Left: Joel Haverstick, Allis-Chalmers; Guy Little, Penn Machine Co., and on extreme right Bob Edgar, Watt Wheel & Car Corp.

## Monongahela Country Club Meeting of Western Pennsylvania Coal Operators Golf Association



Left: Harold Lusk, Representative, Wilmot Eng. Co.; Ed Siemon, President of this golf assn.; Eddie Vant, Jeffrey Mfg. Co.; "Chief" Arentzen, President, Lee-Norse Co. and sponsor of this party and Jack Connor, Manager Mines for West Penn Power Co.

The Bituminous Coal Operators Golf Association of Western Pennsylvania met at the Monongahela Country Club at Monongahela, Pennsylvania, Thursday, September 20. This Association meets on this course once each year in honor of E. M. "Chief" Arentzen, President of the Lee-Norse Company, manufacturers of the Lee-Norse Continuous-Mining Mining Machine and Lee-Norse Jeeps.

The day for golf was very good, in contrast to an all day rain last year. Attendance could have been better but the crowd was large enough to fill the nine hole course. Refreshments were furnished by the Lee-Norse Company and were

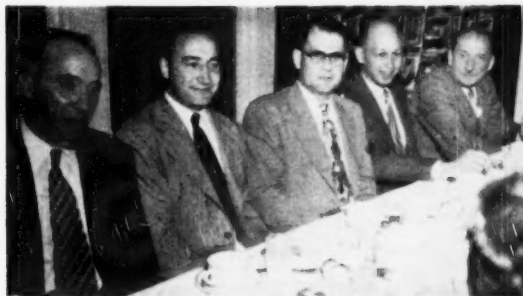


Lane Lovett, Supt., Emmett Harris, Pr. Agt., Ted Hindman, Chief Eng. and Jim Thornton, Eng. All of the Lee-Norse Co.



Left: Max J. Caylon, Sales, R. J. McGinnis, Sales, and Ed Johnson, Manager, all of the Kennametal Corp.; Joe McVicker, Republic Steel Corp. and Geo. Buerger, Liberty Power Co.





Left: Andy Howard, National Battery Corp.; Martin Valleri and Harry L. Swihart, Buckeye Coal Co.; O. O. Shott, Goodman Mfg. Co.; J. V. McKenna, State Mine Inspector.



Left: H. Wm. Petty, R. E. Uptegraph Mfg. Co.; Vincent E. Oswald, Electric Mfg. & Repair Co.; Dale H. Miller, Crucible Fuel Co.; Walter G. Kuta, American Steel & Wire Co.

served out-of-doors before and after dinner which made this the most pleasant of these affairs to date.

It is meeting men like those who attend these affairs that makes us enthusiastic over the possibilities of industry holding its own in this fast moving world. The coal mining industry has the kind of material it takes to keep pace with the technological advances.

Our problem at the moment is to select and train the ability we have, bearing in mind that the ultimate goal of technology is automation. The ultimate goal in our industry is mining without miners.

A recent careful investigation made by a group of students at the Harvard Business School, has concluded that present automatic controls make it possible to build a completely automatic factory in which all steps from raw materials to finished product would be done



Left: Bruce Madera, Baton Coal Co.; Syd Gane, S. E. Gane Co.; Bob Edgar, Watt Wheel & Car Corp.; B. A. Dennis, DuPont Powder Co.; I. M. Meyer, Timken Roller Bearing Co.

by automatically controlled machines. To prove this they designed an automatically operated piston plant.

Most of our present machines basically perform the desired operations while man services or tends

them. Performed by automatic controls, these machines would give higher production than is now possible, with no increase, possibly a decrease in capital requirements. The group argues that automatic control is just as feasible in indus-



Left: Thos. Mark, Mine foreman and W. E. Hart of the Crucible Fuel Co.; James I. Murray, W. T. McCullough Electric Co.



Left: E. S. Williams, Hewitt Rubber Co.; R. Eearl McIntyre, Frick & Lindsay; Leo Lawney, Galiardi Coal Co.; Carl F. Sterbutzel, Sterbutzel Service Co.



Left: Fred Colley, Penn Machine; Ken Bartlett, Div. Supt. Bethlehem Collieries; J. P. Howell, Jeffrey Mfg. Co.; Ed Phillips, Tom Brow, Inc.



Left: "Will" McCalla, West Penn Power Co.; M. S. Mawhinney, Mfg. Rep.; Arch L. Voight and David M. Jones.



Left: Pete Stopenak, American Testing Corp.; F. J. Silman, Bethlehem Collieries; E. R. Cooper, Manager Mines, Jones & Laughlin Steel Corp.; W. J. Van Horn, Summit Lumber Company.



Left: Edwin L. Core, Stan. Kane and Leo Schulte, all of the Moseback Electric & Supply Co.; Howard Miller, Crucible Fuel Co. and John Wilson Watt, Wheel & Car Corp.

tries that manufacture discrete units as in such continuous process industries like coal mining or petroleum refining. Standard production type machines for fabricating functions and linking together of these units with automatic materi-

als handling equipment for the achievement of automation can be provided by the use of small digital computers. The Group conclude: "The technology required for industrial automation is in large part already here. The lack of knowledge

of what is technologically possible, and the lack of fruitful thinking about the industrial application of this technology is today the greatest single factor that is holding back the level of automation which is otherwise possible."



Left: G. C. Young, Dupont Powder Co.; A. J. Watkins, retired; Pete Latta, Supt., Crucible Fuel Co.; Morton D. Cooper, National Coal Assn.



Left: Ken Benson, Ohio Brass Co.; Ed Fish, Chicago Pneumatic Tool Co.; Bill Schiffbauer, Buckeye Coal Co.; H. D. Robb, Timken Roller Bearing Co.



A. J. Nairn, State Mine Inspector, was one of the speakers at the meeting.



Left: Sam Polack, USBM, A. C. Resick, Secretary and Dennis J. Keenan, President of the Association.

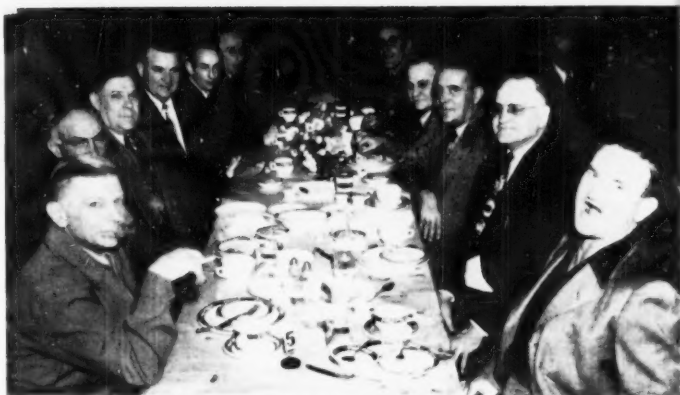


"Biff" Donetelli, addressing the group after dinner.

## Northern Cambria Coal Mining Institute Meets

The Northern Cambria Coal Mining Institute held its 36th Annual Meet at Barnesboro, Pennsylvania, on Saturday, October 27. Institute sessions took place at the American Legion Home at 2:00 P. M. when Mr. A. J. Nairn, State Mine Inspector was the principle speaker. Mr. Nairn stressed Safety. Sam Polack, U. S. B. M. spoke on proper fitting clothing in mines and, in his own way of putting humor into his subjects held the interest of the group and got his points across. The afternoon session was under the supervision of Mr. A. C. Resick, Secretary. After the afternoon sessions there were refreshments and good fellow get together from 4:15 to 5:30.

Dinner was served at the St. Thomas Parish House at 6 P. M. and was well attended. The principal speaker at the dinner was



Left: John Frank, Pumper, S. A. Lortzy, blacksmith, James Boothman, FUMWA 617 Richard Todhunter, Jr., Burgess of Barnesboro, Pa.; Mervin Gulich, Mayor and Coulson Ltd., England; Ben Butterworth, Coal Inspector; John M. Wymer, Clerk, R. J. McCormick, McCormick Coal Co.; John Lucasko, Foreman; Joe Sacorchik, UMWA 617.



Left to right: Steve Jansura, Burgess of Hastings, Pa., Jan. J. Wojachowski, U. S. Bureau Mines, John J. Brazill, Supt. Rich Hill Coal Corp., J. J. Dougherty, S. P. Polack, and C. L. Brown, all of the U. S. Bureau of Mines.



Left: Clarence L. May, State Mine Inspector, J. G. Nicholson, Treasurer of the Northern Cambria Mining Institute, Harry Sanford, Johnstown Section U. S. Bureau of Mines, C. E. Fisher, State Mine Inspector.



Left, standing: Isadore W. Wesner, Mining Engineer, Wm. Dunchuck, Laborer; Richard Dunchuck, Face Boss; George Dunchuck, Superintendent, all of the Barnes and Tucker Mine 15 and O. A. Schwanke, Hulburt Oil and Grease Co.



Left: John B. Milchak, Foreman; F. P. Shutty, Foreman; J. N. Symons, Engineer and Thomas Nelson, Safety Inspector, all of the Peale Peacock and Kerr Coal, Inc.

"Biff" Donetelli, National League Baseball Umpire. Mr. Donetelli was chosen speaker because he is from the Barnesboro area and because he worked as a miner for the Sterling Coal Company, also of this area.

This meeting could be called an overwhelming success as far as the average meeting of this kind goes. In my book it had the same faults that all meetings like it have today and that is they are missing the

point of their intention. Thirty-six years ago the subjects discussed were up to date and did good. Today they are the same old hash, not even flavored with up to date ideas. Nothing is ever done about the con-



Left to right: Francis Yeaglin, Assts., John Toth, Fireboss, Paul Campanation, Fireboss, William Patterson, Assist., all of the Sterling 1 Mine of the Sterling Coal Co., Ellensburg, Pa.



Walter S. Benosky, Supt., Cambria Clearfield Mining Co., W. L. Myers, Asst. Gen. Supt., Springfield Coal Co., Joseph Paydock, Supt., Cherrytree Coal Co., Walter Hunter, Eng., Peale, Peacock & Keer.



John Miller and Chas. Wooding, foremen of the Hasting Fuel Co., Andrew J. Koval, forman, Rich Hill Coal Co.; Herbert Patterson and John E. Steir of the Reed Coal Co.



Left: George Sheisley and Wm. Price, foremen; George P. Resik, Superintendent; Joseph Peschorchick, foreman and Henry Veil, supt. of maintenance, all of the Maryland Trojan Coal Co., Glenn Campbell, Pa.





William Bichall Coal Preparation engineer; Lewis Robbins, maintenance foreman; David Desper, visitor from Virginia; R. G. Lutz, electrical shop foreman.



Alex Lawson, Patton, Pa.; Harold Rounsley, A. J. Vrano, John B. Lonergan, all of the Rounsley & Vrano Coal Co.

tinuous mining and the new and untried systems of production that must be found to make that equipment produce its best. No one ever mentioned automatic mining and the kind of projections that will be required, yet we are heading for automatic mining as sure as we were born. We cannot turn away from these new developments in industry, hard as they tax our imaginations.

Alert industry seeks and helps improve technological advancements. Alert industry also looks ahead by improving its greatest resource, the human mind. One of the newer thoughts in industry is year-round level employment that should receive a great deal of thought in the coal mining industry. It has been found that steady employment instills confidence in

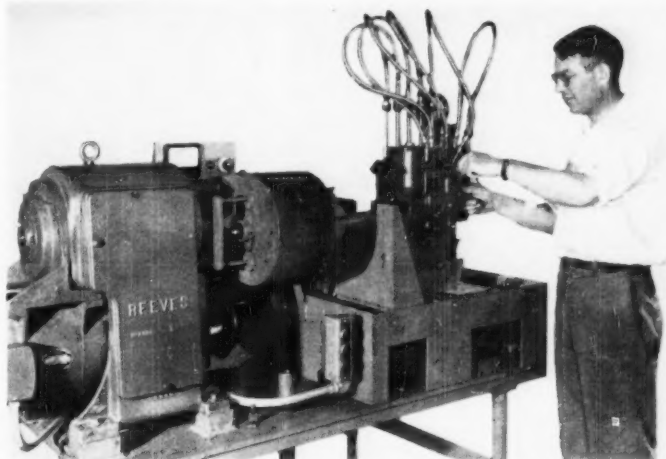


Left: Henry Kellacher, Chief Clerk, Charles H. Smith, Outside Foreman, Joseph E. Cole, Supply Clerk, Pete Donahue, Chief Electrician; Kenneth Nicholson, Foreman, and Pete Wilson, Superintendent, all of the Pennsylvania Coal and Coke Co., Marsteller, Penna.

employees, reduces personnel losses; therefore, lowers cost of training new employees, reduces production facilities required to handle peak loads, and results in better community relations.

- A "cover-all" garment for workers to wear in situations where extreme heat makes it impossible for unprotected persons to exist is an inflatable affair held away from the body by air from a pump and made of a fabric with an aluminum surface on the exterior and a black color on the interior. The aluminum is highly reflective of heat waves such as infra-red rays, and the black interior material presents a low resistance to the absorption of infra-red. Inventor is Karl L. Dunn, Corning, N. Y. His award is patent 2,573,414. Helmet and gloves are a part of the garment.

- At a meeting of the Board of Directors of Mine Supplies, Inc., Cadiz, Ohio, S. F. Myers was elected Vice President and General Manager. Mr. Myers has for the past year been Manager of Mine Supplies. Before coming to Cadiz, Ohio Mr. Myers was with The Browning-Ferris Machinery Co., of Dallas, Texas.



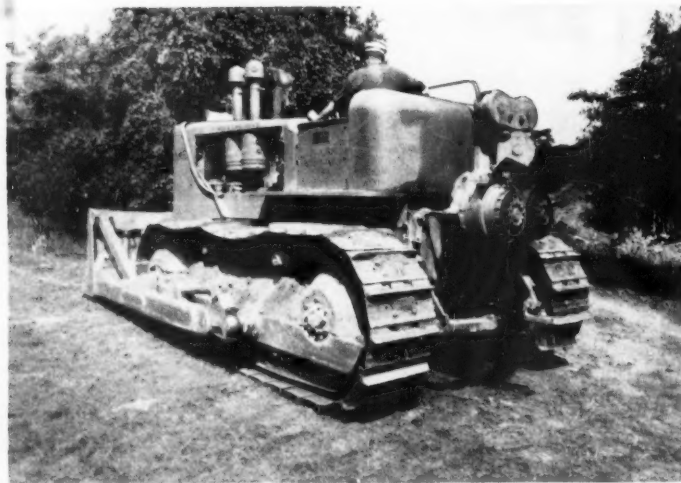
Testing of fuel pumps used on the exclusive Cummins fuel system has been standardized by the development of a new fuel pump test stand by Cummins Engine Company, Inc., at Columbus, Indiana. Here, J. Elwin Gates, Cummins laboratory technician, makes a final adjustment on a Cummins DD fuel pump prior to the start of a series of standard tests recently perfected by Cummins for all models of Cummins fuel pumps.





The Lima 1201 dragline and Lima 1201 shovel working together in the East pit.

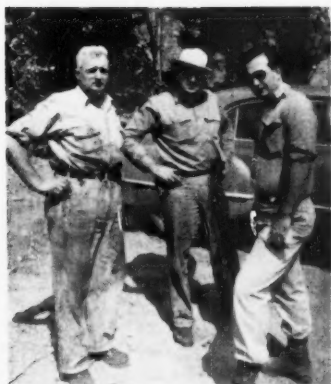
## Two Sets of Draglines and Shovels Work Together at Frank Pulford's Strip Mine



A-C H D 20 tractor about to start pushing top soil in new cut area.

Frank Pulford originally started in coal stripping with his father in the anthracite region of Pennsylvania. He moved his equipment to the northwest Pennsylvania bituminous field and has stripped several properties there.

The lie of strippable coal in that region does not permit the use of large stripping equipment, nor the stripping of extended territory. At the present time Frank Pulford is stripping about 10 miles west of Punxsutawney, Pa. There the lower Freeport seam of coal lies in stripable position about half way between the high and low spots in the area. Cover consists of washed-in sand, then brown shale which is soft and requires no shooting for the



Left to right: C. W. Clemens, Master Mechanic; W. E. Majors, Superintendent; J. J. Gillman, Assistant Superintendent.

first and sometimes second cuts. When drilling is required to shoot the cover, shot holes are made with McCarthy earth drills.

Stripping is done with two sets of Lima 1201 draglines having 85-foot booms and 3½-yard Page buckets, and Lima 1201 shovels with 42-foot booms and 37-foot sticks.

The coal averages 40 inches thick and is loaded out with the stripping shovel in each of the pits.

Gorman-Rupp gasoline driven pumps and 1200 feet of flexible, light weight plastic pipe keep the pits dewatered.



Lima 1201 dragline and Lima 1201 shovel working together in West pit.



Caterpillar D-8 tractor working with the 1201 Lima dragline in the East pit.

### MODERN EQUIPMENT BRINGS EFFICIENCY TO TOXEY AND HOSMER STRIP OPERATION

Back in 1946, Toxe & Hosmer started stripping coal with two beat up old shovels in the hill near Brookwood, Alabama. These two men soon learned that the old shovels were not giving efficiency needed to make a profit and that a dragline would give the lowest cost in moving their overburden.

It took Toxe & Hosmer three years to make enough profit to purchase a Link-Belt Speeder Model



K-360 dragline with Speed-O-Matic full hydraulic control, having 60 foot boom and  $1\frac{1}{2}$  cubic yard bucket. With this new machine they increased their profit and purchased a Link-Belt Speeder K-370 shovel with Speed-O-Matic full hydraulic control and  $1\frac{1}{4}$  cubic yard dipper.

- Anthracite coal dust, now largely wasted, and pulverized bituminous coal can be burned at extremely high rates of heat liberation in a type of upright cyclone furnace for which patent 2,573,910 was issued to Henry Kreisinger, Piermont, N. Y. Combustion Engineering-Superheater, Inc., has acquired the rights.

The furnace is a cylindrical affair which stands on end, requiring little space. The finely divided coal is blown in the center of the top and surrounding it air under pressure enters. Half way down the sides of the furnace are other air inlets to aid combustion. At the base is a second combustion chamber where any particles that escape burning above are consumed.



BEN TEANO

- Kennametal, Inc., Latrobe, Pa., announces the appointment of Benedict (Ben) Teano as representative for the territory of southeastern West Virginia and eastern

Virginia. Mr. Teano's former experience had been with the Consolidation Coal Company, Fairmont, West Virginia. He had worked underground, largely in a supervisory capacity, for almost fifteen years.

- Oliver D. Filley, Jr., has joined the Atlas Equipment Corporation, North Side highway and contractors equipment distributors, as an assistant to John L. Baird, vice president in charge of parts and service. Mr. Filley was formerly with International-Harvester Company in Pittsburgh. He is a graduate of Groton School and Harvard University.

STAR LIGHTWEIGHT ALUMINUM  
JACKS FOR ROOF TIMBERING  
and  
SAFETY POST WORK

Distributors  
S. E. GANE & CO. 508 Grant St., Pittsburgh, Pa.



### INCREASE YOUR PRODUCTION

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DALY'S IMPROVED COMBINATION MINE CHECK  
The Only Satisfactory Check on the Market Today

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### SALEM "HERCULES" AUGERS FOR ELECTRIC DRILLS

Made To Withstand High Drilling Speed, Whip And Torsional Strain Of Electric Drills



Drills holes faster—Will not snap off shank or chip points—Outlasts four or five ordinary augers.

**THE SALEM TOOL COMPANY**

**SALEM, OHIO, U. S. A.**

## Speed up winter construction with Silent Glows

You deal old man winter a knockout blow with Silent Glow. Simply flick a switch and you have heat where you need it. Ideal for every construction job, heating buildings, pre-heating machinery and freight cars, thawing earth and pipes . . . No smoke! No odor! Eight models (168,000 to 800,000 B.T.U. per hour) meet every heating need. A-4195

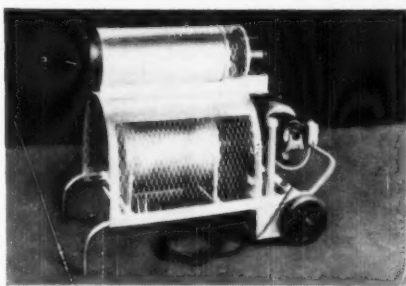
*Highway*

**EQUIPMENT COMPANY**

6465 Hamilton Ave.

Pittsburgh, Pa.

Phone EMerson 1-3600



Silent Glow Model RF portable forced air automatic oil heater. Output—168,000 B.T.U. per hour.

• Samuel Moore & Company, manufacturer of Dekoron tubing, announces a new plastic armored electrical metallic tubing for use where corrosive atmospheres necessitate frequent replacement of electrical conduit.

The new Dekoron conduit is made by Samuel Moore & Company's patented extrusion process. A .020-inch coating of tough, corrosion-resistant vinyl or polyethylene plastic is extruded over standard galvanized electrical metallic tubing. By varying the thickness and composition of the plastic armor, the conduit can be given any desired dielectric properties. The manufacturer states that Dekoron conduit is impervious to corrosive effects of moisture, salt air, acids, alkalis, oils and grease, and is immune to normal temperature changes.



Fabrication and installation of Dekoron conduit is easy and can be accomplished without the use of special tools, according to the manufacturer. Standard compression type couplings and connectors wrapped with electrical insulating tape are used at joints.

Standard Dekoron conduit is black but special colors can be supplied. If desired, the plastic coating can be applied over standard rigid conduit instead of galvanized electrical tubing.

For further information on Dekoron coated electrical metallic tubing, write to Samuel Moore & Company, Mantua, Ohio.

## DRAGLINE BUCKETS

**Geo. L. Wilson & Co.**

Office & Warehouse • 310 Mendota St. • Pittsburgh 12, Pa. • CEDAR 1-7710



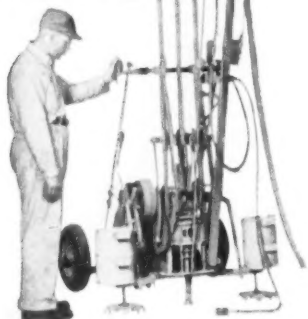
Enos Coal Mining Company, Oakland City, Indiana, has increased production with the use of 300 hp Model NHRBS-600 Cummins Diesels in 50-ton Dart and 35-ton Mack coal haulers, despite a lengthened haul from the pits to the mine's coal washer. The Dart in the picture, although rated at 50-tons, actually hauls closer to 60 tons—more than a rail road coal hopper car. Fuel consumption for the 300 hp Model NHRBS-600 Cummins in this service, according to Fred Brammer, Enos' Maintenance Superintendent, is five gallons an hour while "lube oil consumption is negligible."

• A silicone resin is the basis of a preparation to apply by brush or spray to brick and masonry walls to make them water repellent for an invention on which patent 2,574,168 was issued to Bayard R. Brick, St. Louis, Mo. Rights are

assigned to Walter Wurdack of the same city. Solvents in the preparation dry out within the pores of the masonry, leaving coatings of the resins which repel water more efficiently than is done by waxes and oils.



**A ONE MAN  
DRILL FOR  
PROSPECTING  
and  
BLAST HOLE  
DRILLING!**



**THIS HOSSFELD ROCK DRILL**

with prospecting attachment will cut your drilling costs to as low as 30c per foot . . . give you accurate samplings to 70 feet deep.

It's a compact unit that can be moved into hard-to-get-at places.

- POWERFUL DIRECT DRIVE
- ONE MAN OPERATION
- ECONOMICAL

**BLAST HOLE DRILLING** can be done faster and better, too. Holes are full diameter all the way. Drills at any angle from vertical to horizontal.

**WRITE TODAY** for illustrated bulletin with full details.

**DEALERS**

Write for franchise information TODAY.

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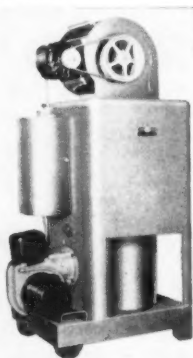


**Hossfeld Mfg. Co.**  
Winona, Minnesota

• A new 140,000 B.T.U. heat machine for indoor or outdoor use is announced by Fageol Heat Machine Co., Detroit.

Known as the Fageol Model PW-140, the machine is reputed to employ an entirely new principle of forced-air circulation and to "heat men at work—not empty spaces."

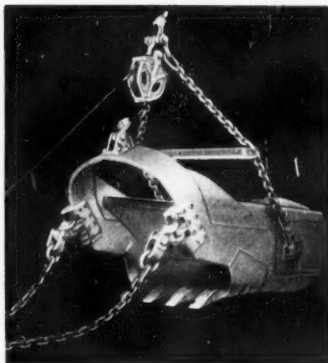
The manufacturer states that, by blowing warm air out of the machine's base along the floor, it creates a 6-foot-high heat blanket and eliminates the necessity for heating vast overhead areas in order to keep workers comfortably warm. This concentration of heat is said to reduce heating costs by as much as 90 per cent.



Unlike ordinary conventional heaters, the Model PW-140 sprays heat from all sides across the floor. Consequently, it can be advantageously located in the center of large areas. The Model PW-140 is designed to comfortably heat workers in areas up to 3,000 square feet of confined space or 1,600 square feet of open space. A 200,000 B.T.U. model known as PW-200 is also available.

Fageol Heat Machines burn regular furnace type fuel oil of No. 3 or lighter grades or kerosene. Model PW-140 requires no flue or chimney. Self-contained, it has an attached 6-gallon fuel tank and is equipped with wheels for easy portability as a hand truck. Dimensions are 21"x33"x58" high. The machine weighs 245 pounds. Burner is UL-approved gun type, pressure atomizing. The machine can be started or stopped by simply snapping a switch.

Heat Machine uses, recommended by the manufacturer, include heating entire factory or warehouse buildings; heating individual working areas in large buildings; heating men, equipment, work shacks, frozen ground, etc., on con-



**Page  
Improved  
Automatic  
Dragline  
Buckets**

• •

Repairs for ALL Page  
Dragline Buckets

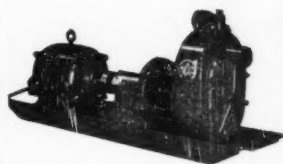
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**McCLURE  
EQUIPMENT CO.**

3045 Jenkins Arcade  
Pittsburgh 22, Pa.

PHONE: COurt 1-5225





## MARLOW SELF-PRIMING CENTRIFUGAL GATHERING PUMPS

Complete Line Carried in Pittsburgh Stock. Tel. HU 1-4400

# HARRIS

PUMP AND SUPPLY COMPANY

Brady & Sidney Sts.

Pittsburgh 3, Pa.



## "SUPERIOR" COUPLING LINKS

Drop Forged, Electric Welded, Fire Welded  
A "Superior" line of Mine Car Couplings of all sizes  
various types — All sizes, 7/8 in. & larger  
Shackles — Cutter Bits — Bit Steel

**PITTSBURGH KNIFE & FORGE CO.**

1421 Reedsdale St., Pittsburgh (12), Pa.

struction jobs or mining locations; drying agricultural products; drying plaster, cement, etc.; heating airplane hangars; heating garages or repair shops with large, frequently-opened doors; warming repair crews outdoors, and countless other "problem" heating jobs where efficient, portable heat is required.

For further information, write Fageol Heat Machine Co., 5725 Mt. Elliott Ave., Detroit 11, Michigan.

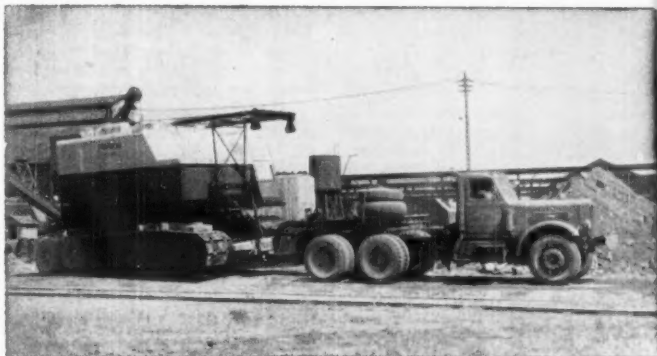
• Cooke-Wilson Electric Supply Co., Pittsburgh, Pa., and Charleston, West Virginia, announces the election of Mr. Thos. W. Henderson to the position of Vice President and General Manager. He will be located at 201 East Carson St., Pittsburgh, Pa.



Mr. Henderson was educated at Pennsylvania State College and the University of Pittsburgh. He entered the supply business in 1947, after some fifteen years experience in the Operating Department of West Penn Power Company. Mr. Henderson also served with the U. S. Army Corps of Engineers, in the South Pacific.

He is a member of the Engineers Society of Western Pennsylvania, Coal Mining Institute of America, and the Credit Association of Western Pennsylvania.

## MOVERS of Coal Stripping and Contractor's Equipment



## HEAVY HAULING RIGGING

## MOORE-FLESHER HAULING CO.

MOVERS of Coal Stripping and Contractor's Equipment

TWO LOCATIONS

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Phone ALlegheny 1-3600

and

Stoney Hollow Boulevard, Steubenville, Ohio, P. O. Box 547

**Let Us  
Solve  
your  
DRILLING  
PROBLEMS!**

### DIAMOND CORE DRILLING

**BITUMINOUS COAL LAMS  
TESTED . . . SATISFACTORY  
CORES GUARANTEED**

**HOFFMAN BROS. DRILLING CO.**

Punxsutawney, Pa.

Call 382

"WE LOOK INTO THE EARTH"



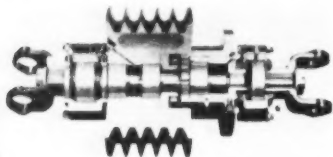
### CORE DRILLING

- Coal Property Testing
- Pre-Grouting Mine Shafts
- Mine Drainage Bore Holes
- Large Diameter Holes for Ventilation & Escapeways

**PENNSYLVANIA DRILLING CO.**

PITTSBURGH 20, PA.

- A new "packaged" heavy duty power takeoff to fit all standard motor trucks is announced by Davey Compressor Co., Kent, Ohio.



Known as the Davey P-80, the new take-off is guaranteed to transmit full engine power to the driving of heavy duty truck-mounted equipment. It contains 12 less parts than its predecessor model, "Davey 75," and is 25 lbs. lighter. Another new feature is a vacuum shift control which is offered as optional equipment. The take-off unit itself is identical for all trucks. Carefully engineered mounting parts for individual truck makes are maintained in stock at all times. Due to design simplification, it is estimated that take-off installation time has been reduced by 50 per cent.

- With the great amount of interest being shown in selenium plate rectifier in coal mine work, branches of the Mining Electro-Mechanical Maintenance Association have asked that a program on

this subject by Mr. Lewis of the Lewis Electrical Manufacturing Co., the largest and oldest exclusive manufacturer of large type selenium plate rectifiers will address M.E.M.A. meetings at St. Clairville, Ohio, February 4, Carmichaels, Penna., February 13, and Cheswick, Penna., February 29.

- Television interference caused by spurious and harmonic radiations of base station 2-way radio communications equipment can be eliminated by the addition of a Motorola Precision Selector Cavity Resonator, the company has announced.

These units, now available from Motorola, minimize spurious and harmonic radiation from any transmitter antenna system and make it possible to use two or more transmitters on the same antenna without mutual interference.

A cavity resonator is effectively a very high "Q" circuit which can be inserted into a line, connecting the transmitters and receivers with the antenna.

Motorola cavities, designed for the 30-48 MC., 72-76 MC., 122-132 MC., and 132180 MC. communications bands are temperature compensated for optimum performance over wide temperature ranges.

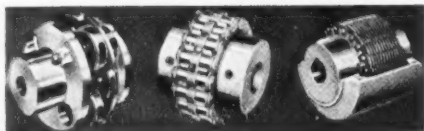
Mechanical design and element dimensions are proportioned for optimum impedance match and a low voltage standing wave ratio. Each unit has an input and output impedance of 50-72 ohms with a 250 watt maximum power rating.

The Motorola Precision Selector Cavity Resonators are available in several degrees of selectivity depending upon application and frequency separation.



U. S. Bureau of Mines Accident-Prevention Classes at Isabella Mine, Wierton Coal Co., Isabella, Pa., November, 1951. S. P. Polick, Mining Engineer, Instructor.

### FLEXIBLE COUPLINGS



**Tranter**

**MANUFACTURING COMPANY**

105 WATER STREET • PITTSBURGH 22, PA. • COURT 1-0600



## HUBBARD MINE ROOF BOLTS

### WEDGE-NUT STYLE

Easier to install...  
More head room...  
Greater safety...

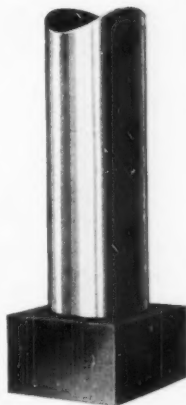
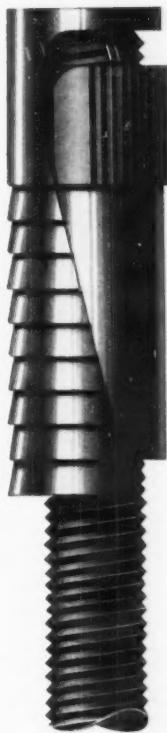
Exhaustive tests have proven that Hubbard Mine Roof Bolts meet all requirements for mines where roof bolting is practical.

The Hubbard Wedge-Nut Style Mine Roof Bolt is easily installed without the use of special equipment. The full square head, without chamfering, eliminates slipping of wrenches, saves time.

The only head room required for the Hubbard Mine Roof Bolt is the thickness of the bolt head plus the plate. Freedom of movement, for men and equipment, improves working conditions, increases output.

The design of the Hubbard Mine Roof Bolt is simple and fool proof. The wedge-nut consists of two diagonally separated sections. As the bolt is tightened the two sections move one against the other with a wedging action, spreading both parts against the walls of the hole. The wedge so formed takes a biting grip over its entire length that holds for keeps.

Hubbard Mine Roof Bolts are  $\frac{3}{4}$ -inch diameter. They are furnished in any desired length. Usual installation practice employs plate washers 6-inches or more square (not included). Write for additional details.



Patents Applied For



**HUBBARD AND COMPANY**

HUNTINGTON, W. VA. • PITTSBURGH • CHICAGO • OAKLAND, CALIF.

*"Hang the Load on Hubbard Hardware!"*

# When Minutes Count...

## depend on the **M.S.A. Self-Rescuer**

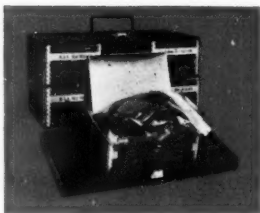
### Instant breathing protection for underground emergencies



When deadly after-damp is produced by fire or explosion, the miner's *immediate need* is breathing protection against carbon monoxide. The M.S.A. Self-Rescuer is an approved, dependable safety item that provides the precious minutes of emergency respiratory protection to the miner while traveling from a contaminated area into fresh air. Compact and light in weight, the Rescuer contains a chemical cartridge, hermetically sealed against deterioration. This cartridge is replaceable after use, a feature that makes the Rescuer an economical device for training purposes. The flexible rubber mouthpiece is shaped for a comfortable, natural fit in the mouth, and forms a perfect seal in combination with the newly designed nose clip to assure inhalation through the Rescuer only. U. S. Bureau of Mines Approved. Write for Bulletin No. BC-1.

### For convenient underground storage

The M.S.A. Cache Assembly, consisting of 6 Self-Rescuers complete in a sturdy metal case, permits convenient underground storage throughout the mine. The Assemblies are designed for storage in various locations—working sections, along conveyor belt line, on man-trip cars—for instant application in emergencies. Individual carrying cases also available.



When you have a safety problem, M.S.A. is at your service.  
Our job is to help you.

### MINE SAFETY APPLIANCES COMPANY

Braddock, Thomas and Meade Sts., Pittsburgh 8, Pa.

At your Service: 66 Branch Offices in the United States

MINE SAFETY APPLIANCES CO. OF CANADA LIMITED

Toronto, Montreal, Calgary, Winnipeg, Vancouver, New Glasgow, N.S.  
Representatives in Principal Cities in Mexico, Central and South America  
Cable Address: "Minsaf" Pittsburgh



With over 40 per cent more struck capacity than previous models, the new "Cat" No. 90 Scraper is designed to increase earthmoving production when used with D8 Tractor power.

Struck capacity of 21.2 cu. yds. can be increased to 25.5 cu. yds. with the addition of top extensions or sideboards. Likewise, heaped capacity is 27 cu. yds., or 31 cu. yds. with the available side boards.



This "Cat" Scraper moves dirt with the aid of a hard surfaced, reversible cutting edge. Material is carried in a flat, double-bottom bowl of high tensile steel. Operation is by means of a "Cat" Cable Control unit, which can be mounted on the rear of the tractor to provide for positive loading and ejection.

Tapered roller bearings are installed at each axle. The scraper uses two 24.00-29 front tires and two 27.00-33 rear tires, all four of 24-ply rating. When loaded, the scraper distributes 60 per cent of the weight on the rear tires.

"Caterpillar" is building the No. 90 Scraper at its new earthmoving equipment plant in Joliet, Illinois. Shipping weight of the unit is 35,100 pounds. Additional information can be supplied by "Caterpillar" dealers or by Caterpillar Tractor Co., Peoria, Ill.

• Mr. E. Guthrie of Harlan, Kentucky, died. Mr. Guthrie was one of the founders of the coal industry in Kentucky and surrounding area.

## TYPE "HS" . . . Heavy Duty COAL STRIPPER

**HENDRIX**  
*Lightweight* DRAGLINE  
BUCKETS

¾ to 40 CU. YDS.



## LOWER MAINTENANCE— —HIGHER PROFITS

Hook-up a Type "HS" Hendrix Dragline Bucket for coal stripping at lower cost per yard . . . more yards per minute! The Heavy-Duty Hendrix "HS" gives unsurpassed performance with minimum maintenance costs and delays resulting in **BIGGER PROFITS ON EVERY STRIPPING OPERATION!** A full load . . . smooth operation . . . clean dumping with less stress and strain on your dragline **PLUS** long life in heavy-duty service. **THAT'S THE HENDRIX HEAVY-DUTY "Coal Stripper!"**

Call or contact us for additional information on the Hendrix "HS" Coal Stripper available with or without perforations.



**DRAVO • DOYLE COMPANY**

2601 PREBLE AVE.

Phone: ALLEGHENY 1-4500

PITTSBURGH 33, PA.

## HEAT at the flick of a switch!

Silent Glows will speed up your winter jobs by giving you heat at the flick of a switch. Eight models meet every need. For buildings under construction, pre-heating engines and equipment, thawing frozen ground and pipes, drying plaster and paint . . . a thousand other uses. No smoke! No odor! See your Highway representative today.

A 4407

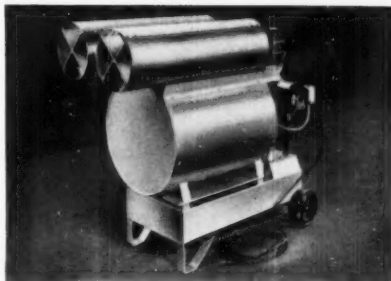
*Highway*

**EQUIPMENT COMPANY**

6465 Hamilton Ave.

Pittsburgh, Pa.

Phone EMerson 1-3600



Silent Glow Model AA portable forced air automatic oil heater. Output—159,000 B.T.U. per hour.

# "EUCS"

Are Your  
Best Bet!

FOR BIG LOADS

FOR LONG HAULS

FOR SHORT HAULS

FOR LASTING STRENGTH

Because of their rugged construction and dependable performance, Rear-Dump Euclids are standard equipment on hundreds of mine, quarry, and construction jobs. For moving rock, ore, overburden and other heavy excavation, "Eucs" have the capacity and speed to haul bigger loads faster and at lower cost per ton or yard moved.

Look at the record! Of the thousands built, nine out of eleven Euclids are still in use today! They're job proved...have earned their

reputation for staying power, low-cost production and efficient operation on a wide range of work.

Owners know from experience that they can depend on prompt, efficient service from Euclid's world-wide distributor organization.

Euclids are your best bet for more loads per hour and more profit per load. Write for information on the complete line of Euclid equipment, or call your Euclid Distributor today.

The EUCLID ROAD MACHINERY Co., CLEVELAND 17, OHIO



• Appointment of Oscar J. Harm as sales engineer in the Pikesville, Kentucky, area, for the Mining Sales Division of Mine Safety Appliances Co., Pittsburgh, has just been announced.

A specialist in breathing apparatus, artificial respiration equipment and inhalational therapy instruments for use in connection with mining safety, Mr. Harm has made a number of talks on these subjects before various groups, during recent months.



In his new assignment he will handle the complete line of M. S. A. safety equipment and apparatus, and Edison Electric Cap Lamps, in Floyd, Johnson and parts of Pike and Letcher Counties.

A graduate of Pennsylvania State College, Mr. Harm has had considerable mining experience. In addition, he has completed special courses in anatomy and physiology. After discharge from the U. S. Army, in 1942, he joined Mine Safety Appliances Company and until his new assignment was stationed at the Company's Pittsburgh headquarters.

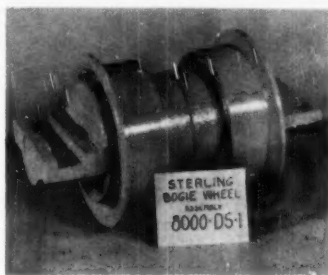


• A new style tungsten-carbide insert bit with high shock resistance has been developed by Kennametal, Inc., Latrobe, Pa. This bit is designed to give long service in ripping and tearing action in continuous mining or irregular cutting where conditions are extremely severe.

• A new line of bogie wheels for crawler type tractors was announced by the Sterling Steel Casting Co., East St. Louis, Ill.

These new wheels are fully Tim-

ken equipped, are completely assembled, bearings adjusted and lubricated at the plant, positive seals

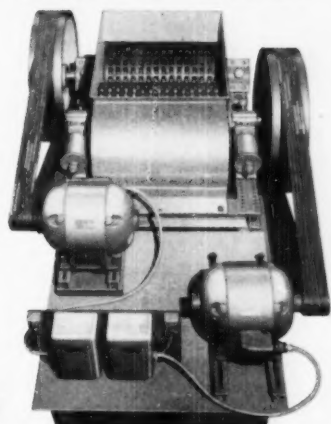


keep out all foreign matter, need not be lubricated until after 1500 HOURS of continuous operation, permanent locking devices assure you perfect bearing adjustment at

all times, are easily dismantled and repaired, rollers are independent of one another which cause less friction on crawlers, rollers are at a constant hardness throughout assuring you of long life and efficient operation, are all that their name implies—the very highest quality and workmanship.

• The Southern Appalachian Coal Operators Association held its Annual Meeting on November 16 and reelected last year's officers to serve another year. They are: C. R. Griffith, President; S. G. Moore, First Vice-President; D. E. Griffith, Second Vice President and C. W. Davis, Secretary. Mr. Joseph E. Moody, President, Southern Coal Producers Association was guest speaker.

## Crush Coal **UNIFORMLY** with *Less* **POWER!** • **SCOTTDALÉ** *double-roll* **COAL** **CRUSHERS** •



**NO. 63 SPECIAL — 2 MOTOR DRIVE — PRODUCES A PRODUCT 1/4" to 8". EQUIPPED WITH TWO GROOVED FLYWHEELS (NO GEARS)**

In Scottsdale double-roll Crushers, the shredding action of hooked teeth arranged in a staggered position on the rolls produces a more uniform coal product . . . fines are kept to a minimum . . . **LESS POWER IS CONSUMED!** Other Scottsdale features that result in long, efficient service include: Forged Steel Toothed Gears; Welded Steel Base; Bronze Bushed Journal Bearings; Welded Steel Hopper; Grooved Flywheels.

WRITE FOR COMPLETE DETAILS AND PRICES

# SCOTTDALÉ MACHINE, FOUNDRY & CONSTRUCTION CO.

DEPT. MC

BOX 51

SCOTTDALÉ, PA.

**SPECIAL BARGAIN**

2 Type A3G Goodman Duck bills.

**COAL DRILLS**

2 Jeffrey—256 v. DC.

**COMPRESSORS—SPECIAL BARGAIN**

2 240 cfm Westinghouse 3 cyl. vert. 150 lb. pres. dir. con to 50 HP. AC Shp. ring or DC Motors.

**MOTOR GENERATOR SETS—250 V. D.C.**

Motors 220/440 v. or 2200 v.—3 hp., 60 cy.

No.	KW	Make	RPM
1	250	Westinghouse	1200
1	200	Westinghouse	720
2	200	Westinghouse	1200
1	100	Westinghouse	700
1	100	General Electric	900
1	100	Westinghouse	600
1	100	General Electric	1800
1	100	Reliance	680
1	100	Delco	1200
2	90	Westinghouse	680
4	75	Westinghouse	720
1	75	Westinghouse	1200
1	60	Westinghouse	1200
1	NEW 50	General Electric	1800
3	40	Westinghouse	900
2	30	Westinghouse	720

**125 V. DC M.G. Sets**

1—100 kw. G.E. 125 v. 900 rpm. 220/440 v.

3 ph. 60 cy. AC Syn.

1—125 kw. G.E. 125 v. 1200 rpm. 220/440 v.

3 ph. 60 cy. AC.

1—75 kw. West. 125 v. 1200 rpm. 220/440 v.

3 ph. 60 cy.

**DUQUESNE ELECTRIC & MANUFACTURING CO.**

Phone MONTrose 1-5800

Pittsburgh, Pa.

Fairfield Portable Rubber Tire Conveyor, 31 by 16 feet, gas motor.

2—Jeffrey L-400 loading machine and parts.

2—Jeffrey 35-B cutting machines and parts.

1—Goodman 91-E permissible locomotive.

3—Myers-Whaley Loading Machines and parts.

Joy 8-B U' loading machines and C-P drills.

Armatures L-400, 35-B, Goodman 50 H. P.

Motors, 220-V. 15 to 150 RPM. 670 to 1150.

Joy 6 x 3-E shuttle cars

Goodman 512 shortwall.

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Phone LEgh 1-2254

**RELAYING RAIL**

TRACK ACCESSORIES

**Midwest Steel Corp.**

Charleston 21, W. Va.

Telephones LD-98 or 21-121

**NEW AND REBUILT  
STORAGE BATTERY  
LOCOMOTIVES**

Any Size Any Track Gauge

**GREENSBURG MACHINE CO.**

Greensburg

Pennsylvania

**SNOW-REM.****SNOW PLOW WAX**

Carnauba and SILICONE

Makes snow  
removal  
faster, easier,  
cheaper.**SPECO, INC.**

7308 ASSOCIATE AVE. • CLEVELAND 9, OHIO

**D.C. Generators—250 v. D.C.**

No.	KW	Make	Speed
1	250	West.	1200
1	175	G.E.	700
3 NEW	135	G.E.	1150
1	125	West.	860
1	125	Allis-Chal.	1150
1	110	West.	700
1	100	Allis-Chal.	1150
1	75	West.	750
1	40	G.E.	720

**HOISTS OR WINCHES**

200—1½ ton Hand Cranked ratio 27:1 thru an enclosed double reduction gear unit with 4 planetary gears mounted on steel plate complete with 48' of ¼" cable, ratchet type brake, push button release.

**CAR PULLERS**

100—Brand New with ¼" cable, 1½ and 2 ton A.C. or D.C. Motors.

**COMPRESSORS**

1—315 CFM Ingersoll Rand Portable, 100 lbs. pres. driven by 105 HP Waukesha Oil Engines, 860 rpm.

**BARGAIN—FOR SALE**100 KW. Diesel Engine Generator Sets  
11—100 KW., 250/275 v. D.C. Delco Generators dir. con. to 150 H.P., Model GBD-8, 8½ x 7, 8 cyl. Superior Diesel Engines, electric starting with muffler, power panel and accessories.

Practically as good as new—

Only Used for spares.

Tell them you saw it in

**COAL MINING****FOR SALE**

MARION 111-M Long Range Stripping Shovel, 3 cu. yd. Dipper—43'-6" boom. GM Twin 6-17 Diesel power with Ward-Leonard Electric swing. In excellent condition, being sold as a result of a changing operation. Located in Eastern Ohio. Available immediately.

**MARION POWER SHOVEL CO.**  
Marion, Ohio**FOR SALE****COAL CUTTERS**

7—7-B Sullivan Shortwall USBM 220/440—3-60 motors, 9' bars.

**SHAFT HOIST**

1—250 H.P. Vulcan Cylindro-conical drum 2-rope 10,500 lb. pull, 1260 fpm, Lilly controls, hydraulic post brakes.

**OIL PROCESSOR**

1—Viking Hot Oil Vapor Processor and 8' x 27' oil storage tank.

**MINE LOCOMOTIVES**

3—West. 8-ton battery 36"-42" gauge, 1947 models, complete with batteries and chargers.

**TRANSFORMERS**

1-150 KVA Nitrogen Sealed AVR West. 2400-240 480 3 phase, 1948 model.

1-150 KVA Dry Type West. ASL "Mine Power Center" 2400-480 3 phase.

1-50 KVA West. Dry Type, ASL 2400 240/480.

**Roger Pierce Equipment****Sales Company**

808 Newhouse Building

Salt Lake City, Utah

Phone 3-3973

**EVERYTHING SOLD BELOW  
OR AT O.P.S. CEILINGS****NATION'S LARGEST  
HEAVY CONSTRUCTION  
EQUIPMENT AUCTION****\$2,000,000****A  
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N****NEAR NEW AND USED  
SHOVELS, CRANES,  
DRAG LINES, PULL  
SHOVELS**

Extra attachments for above

**TRACTORS**All makes, some with  
dozers, tractor shovels,  
pushers, booms, PCU's;  
and rubber tire tractors.**TRACTOR PARTS**

including tracks

**MOTOR SCRAPERS,****DOZERS and PULL****SCRAPERS, MOTOR****GRADERS, PUMPS,****ASPHALT EQUIPMENT,****GENERATORS,****GRAVEL EQUIPMENT,****ROLLERS,****LOW BOY TRAILERS,****TRUCKS, tractor & dump,****WINCHES, all makes****TRENCHERS,**

all sizes and makes,

**BUCKETS,**

Clam, Dragline, Concrete

**MISCELLANEOUS, too**

numerous to mention

**ON DISPLAY****3 DAYS PREVIOUS****SALE JAN. 21, 22****V.F.W. BUILDING and 15 ACRES****13315 BROOKPARK ROAD****CLEVELAND****OHIO****2 MILES FROM MUNICIPAL AIRPORT****SEND FOR COMPLETE LIST****ADDITIONAL DESIR-****ABLE EQUIPMENT****ADDED DAILY. SOLD****AUCTIONEERS • LIQUIDATORS****ROSS & ROSS****BRIDGEPORT 8766****101 First Ave. N. • Minneapolis, Minn.**



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JANUARY, 1952

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## OSGOOD

## Model 1006 Air-Controlled Stripping Shovel Opens Way to More Profits in Coal Stripping Industry



Throughout the industry, at progressive strip mines like that of the S. B. & S. Coal Co., Uniontown, Pa. (see photo) the OSGOOD Model 1006 Air-Controlled Shovel is opening the way to more profits—by an unprecedented speed-up in removal of overburden and by a substantial reduction in operating costs.

Centralized levers with air-metering valves permit infinitely variable pressure in activating all motions. Patented Osgood Air Cushion Clutches eliminate jerking and grabbing . . . provide instant, accurate control of load . . . automatically compensate for gradual wear on clutch linings. And OSGOOD Model 1006 has plenty of reach (45' boom, 35' handle) . . . long, wide crawlers . . . good balance . . . extra rugged construction at every point. Write today.



Equipment Designed with YOUR Profit in Mind

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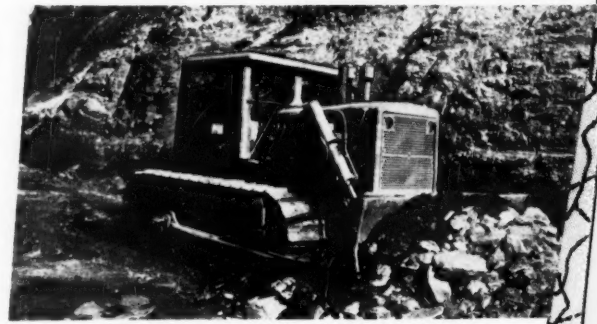
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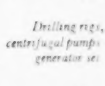
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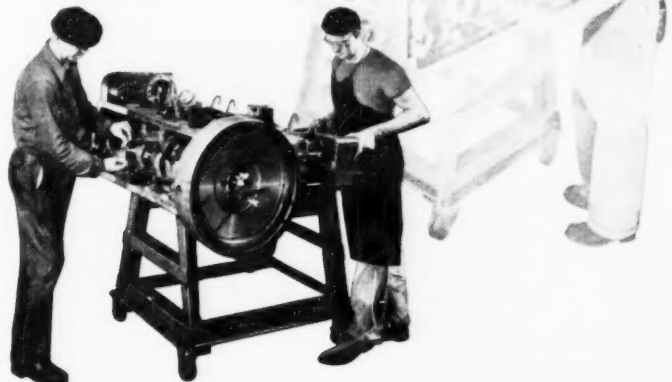
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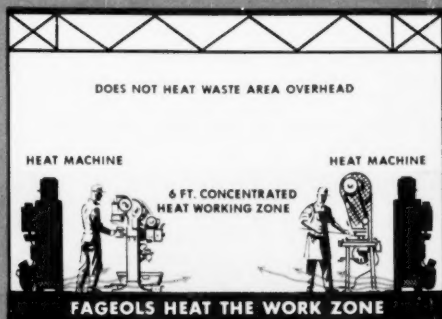
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